AMENDMENTS TO THE DRAWINGS

Applicant submits herewith Replacement Sheets to overcome the objections noted by the Examiner in the July 19, 2007 Office Action.

Attachment: Replacement Sheets

REMARKS

Claims 13-24 are all the claims pending in the application. Claims 13-23 presently stand rejected. Applicant adds claim 24 to further clarify the invention.

Drawings:

The Examiner has objected to drawing FIGS. 1-13 because they are blurry and indistinct. Applicant submits herewith clear and distinct Replacement Drawings to overcome the Examiner's objection.

Claims:

Claims 13-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over newly cited Small et al. (5,129,899) in view of McMillan (5,556,687).

Claim 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Small et al. (5,129,899) in view of McMillan (5,556,687), and further in view of Törmälä et al. (5,084,051).

Claim 23 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Small et al. (5,129,899) in view of McMillan (5,556,687) and further in view of newly cited Eisermann et al. (2002/0123750).

Analysis

Small fails to teach or suggest at least the following features of claim 1:

- A longitudinal implant made of a filament or fiber composite material, wherein filaments or fibers in said material are oriented to resist biomechanical forces;
- A connecting device made of a material harder than said longitudinal implant;
- Wherein, said connecting device is operative to squeeze and lock the longitudinal implant into position…by depression caused by a squeezing;

- Wherein the filaments or fibers are aligned lengthwise so that compression will not change their strength characteristics to any extent even when compressed.

Thus, Small fails to teach or suggest the novel features of the invention directed to having a material harder than the implant operative to squeeze and lock the implant into position by depression and friction, while the implant is made so that compression will not change the strength characteristics even when compressed by the connecting device.

Applicant respectfully submits that a prima facie case of obviousness has not been met because (1) there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify Small in view of McMillin, to arrive at the claimed invention; (2) there is no reasonable expectation of success; and (3) the combination of cited references fail to teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and reasonable expectation of success must be found in the prior art and not based on Applicant's own disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 11438 (Fed. Cir. 1991).

In particular, the bone fixation apparatus as disclosed by Small has a plate 17 which includes a plurality of teeth 27, 28 along the sides of the plate. These teeth define an adjustment distance of a few millimeters and receive projections of a load washer 35 (column 3, lines 61 to 66). The plate 17 is locked to the bolt 11 into position by this washer 35 and the engagement of the teeth 27, 28 with the projections 37, 38. The bolt 11 and the nut 31 squeeze the plate 17 and the washer 35. But the bolt 11 and the nut 31 do not lock the plate 17 into position by depression caused by the squeezing. That is, the plate is locked by the washer 35, and no squeezing causes depression of the plate.

Further evidence is provided by the fact that the slot in the plate 17 of Small includes indented beveled edges 25, 26. Thus, at least the spherical portions 12 engage with the beveled edges of the slot, and thereby, the bolt does not lock the plate into position by depression caused by squeezing. The beveled portion is already recessed within the plate and thereby no further depression is provided by squeezing.

Thus, contrary to the comments in the Office Action, Small does not provide a connecting device operative to squeeze and lock the implant into position by depression caused by squeezing.

Moreover, the indented beveled edges of the longitudinal slot in Small constitute a recess adjacent to the slot. However, the present invention has no recesses formed along the slot.

Further, the Office Action states that "the use of the composite material is advantageous in that it resists splitting of the bone plate (column 2, lines 4-7) and resists bending of the bone plate (column 2, lines 7-10)". In fact, the cited passage states: "The braided reinforcing fibers in the radially inner portion of matrix material resist splitting of the bone plate due to the clamping forces applied to the bone plate by the fasteners" (emphasis added). Therefore, according to McMillin, only the fibers of the radially inner portion of the matrix resist splitting and bending. On the other hand, splitting of the plate is still considered a problem, and thus, spherical recesses 44 and 48 are arranged at the plate to correct the splitting problem. As stated in column 4, lines 23 to 27, the spherical recesses help prevent splitting of the plate by directing most of the clamping forces applied to the plate in a direction normal to the surface instead of transverse to the axis 12.

Thus, if one of ordinary skill in the art were motivated to construct Small with the features disclosed by McMillin in order to prevent splitting of the plate, one would have made spherical recesses in Small to prevent splitting of the plate. In other words, in view of the motivation provided in the Office Action, a person of ordinary skill in the art would have provided spherical recesses to Small since McMillin specifically teaches that the structure of spherical recesses prevent splitting of the plate.

In view of the foregoing, if one of ordinary skill in the art were motivated to modify Small "in order to allow the implant to resist splitting", any modifications would include forming the Small plate with the recesses. There is not a reasonable expectation that forming the plate without the recesses would be successful at preventing splitting of the plate.

Moreover, the combination of Small and McMillin do not teach or suggest all the claim limitations, particularly, having an implant formed with no recesses adjacent to the longitudinal slot since Small has the recessed beveled area and McMillin has spherical recesses along the slot.

In addition, the combination of references does not provide a structure in which the implant is locked into position by depression caused by squeezing.

In view of the foregoing, the three requirements of a prima facie case of obviousness have not been met since the resultant structure of the combination of cited references would include recesses and does not lock the implant into position by depression caused by squeezing.

The remaining rejections are directed to the dependent claims. These claims are patentable for at least the same reasons as claim 13, by virtue of their dependency therefrom.

In addition, claim 24 is patentable for at least the same reasons as claim 13, and moreover, due to the recitation of having a longitudinal slot formed with no indentations or

depressions. Both Small and McMillin provide an indented or depressed portion along the longitudinal slot, since Small includes beveled edges and McMillin provides spherical recesses.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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